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23. (amended) Device for measuring fluorescence excited by light, which has at least one layer which is applied to a support and which at least one layer contains a fluorescing material, having at least one light source which emits light of at least one wavelength that excites fluorescence(s) and thus fluorescent light in the at least one layer, and which is light directed through the support onto the at least one layer by at least one first optical conductor, the fluorescent light being directed by at least one second optical conductor onto at least one detector for determining the intensity of the fluorescent light, wherein the end faces of all the optical conductors are arranged relative to one another as a function of their numerical apertures and/or as a function of the at least one layer containing a fluorescing material and which layer is applied to the support, and the at least one second optical conductors which are arranged as a bundle in the shape of a ring are arranged with the at least one second optical conductor, arranged in the interior of the ring, which bundle is used for exciting light or for generating fluorescent light, or a plurality of the at least one first optical conductors are arranged in series arrangements opposite one another, with one of the first optical conductors and a corresponding one of the second optical conductors forming pairs, such that it is possible to achieve a localized distribution of measurable fluorescence intensity, and the light source(s), the at least one first and the at least one second optical conductors and the detector(s) are held in a measuring head.

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24. (amended) Device according to claim 23, wherein a part of the measuring head holds the outer ends of the optical conductors, and at least the part of the measuring head which holds the outer end(s) of the optical conductors is of flexible construction.

25. (amended) Device according to claim 23, wherein the measuring head has an upper region which is at least partially bent.

26. (amended) Device according to claim 23, wherein a filter, a system of exchangeable filters and/or a launching optical system is/are arranged in each case between the light source and

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the at least one first optical conductor and/or between the detector and the at least one first optical conductor.

27. (amended) Device according to claim 23, wherein the at least one second optical conductors are arranged in the shape of a ring, a circular arc and/or a star on an end of the measuring head pointing towards the at least one layer containing the fluorescing material.

28. (amended) Device according to claim 27, wherein the at least one second optical conductors for the exciting light and the reference light or a further fluorescent light are arranged in an alternating fashion in an outer ring, and at least one of the second optical conductors for fluorescent light are arranged in an inner ring.

29. (amended) Device according to claim 23, wherein the at least one first and the at least one second optical conductors for exciting light, fluorescent light and reference light or a further fluorescent light are inclined at different angles with their ends pointing towards the fluorescing layer.

30. (amended) Device according to claim 23, wherein there is arranged on the upper measuring head region a heater having a temperature sensor and a controller or regulator which is arranged in the measuring head and maintains a prescribable temperature at the fluorescing layer(s) and/or at an upper region of the measuring head.

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31. (amended) Device according to claim 23, wherein the support, which is transparent to exciting light and fluorescent light, has at least partially polished or reflecting surface regions and/or is surrounded there by a medium of lower refractive index, and is mounted in an exchangeable fashion on the measuring head.

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32. (amended) Device according to claim 31, wherein the exciting light is launched into the support with the aid of at least one optical conductor such that the exciting light is totally reflected at least in the region of the layer, and damped total reflection occurs.

33. (amended) Device according to claim 31, wherein the support is constructed in an elongated fashion in a plane.

34. (amended) Device according to claim 31, wherein the support is subdivided along its longitudinal axis into a plurality of regions.

35. (amended) Device according to claim 31, wherein on an end face opposite an end face into which the exciting light can be launched, the support has an angular surface and a layer of the at least one layer which contains the fluorescing material and at which the exciting and fluorescent light is reflected in the direction of a planar optical conductor constructed symmetrically relative to the support, and the light from the angular surface thereof is directed onto an end face arranged at the other end of the optical conductor, and from there at least fluorescent light is directed onto a detector via at least one optical conductor, the support and planar optical conductor being arranged at a spacing from one another and/or being optically separated as far as into the region of the angular surfaces.

36. (amended) Device according to claim 31, wherein the support is of u-shaped construction comprising two limbs, the two limbs are arranged at least partially spaced apart and/or are optically separated from one another, and the exciting light can be launched into an end face of a limb via at least one additional optical conductor, and at least fluorescent light can be coupled out via the end face of the other limb into at least one further optical conductor.

37. (amended) Device according to claim 36, wherein the two limbs of the u-shaped support are connected in the shape of a bow, a wedge or a cone, or by means of an angular web.

38. (amended) Device according to claim 23, wherein heating elements and/or temperature sensors are integrated into the support.

39. (amended) Device according to claim 23, wherein between one of the optical conductors for fluorescence-exciting light and one of the at least one layers containing the fluorescing material, a transparent body made from an optically scattering material is arranged, or a body is positioned, the body comprising a diffusely scattering surface facing the layer, which surface is constructed or arranged on the body.

40. (amended) Device according to claim 39, wherein the body is formed from optically transparent material which contains light-scattering particles and/or is wavelength-selective.

41. (amended) Device according to claim 23, wherein at least one further optical conductor directs light onto a further detector for detecting a reference signal.

42. (amended) Device according to claim 23, wherein an upper heated region is thermally insulated with respect to a lower region, in which lower region the light source(s) and the detector(s) are held.

43. (amended) Device according to claim 23, wherein said device is configured to detect fluorescence-quenching, fluid materials.

Please add the following newly presented claim.

44. Device according to claim 23, wherein the support is configured to receive heating elements and/or temperature sensors.